Major Applied
Research 3
Working Paper 4

Health Spending Inequalities and Government's Role in Zambia

January 1999

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PHR

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In collaboration with:
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Howard University International Affairs Center # University Research Co., LLC

Funded by:
U.S. Agency for International Development

Mission

The Partnerships for Health Reform (PHR) Project seeks to improve people's health in low- and middle-income countries by supporting health sector reforms that ensure equitable access to efficient, sustainable, quality health care services. In partnership with local stakeholders, PHR promotes an integrated approach to health reform and builds capacity in the following key areas:

- *better informed and more participatory policy processes in health sector reform*;
- *more equitable and sustainable health financing systems*;
- *improved incentives within health systems to encourage agents to use and deliver efficient and quality health service*; *and*
- *enhanced organization and management of health care systems and institutions to support specific health sector reforms*.

PHR advances knowledge and methodologies to develop, implement, and monitor health reforms and their impact, and promotes the exchange of information on critical health reform issues.

January 1999

Recommended Citation

Makinen, Marty. January 1999. *Health Spending Inequalities and Government's Role in Zambia.* Major Applied Research 3, Working Paper 4. Bethesda, MD: Partnerships for Health Reform Project, Abt Associates Inc.

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Contract No.: HRN-C-00-95-00024
Project No.: 936-5974.13

Submitted to: USAID
Robert Emrey, COTR
Health Policy and Sector Reform Division
Office of Health and Nutrition
Center for Population, Health and Nutrition
Bureau for Global Programs, Field Support and Research
United States Agency for International Development

Abstract

Government health spending patterns and household survey data in Zambia permit analysis of the effects of government funding and resource allocation reforms on inequality in the system. The country's health sector reform program includes dividing responsibilities between the Ministry of Health (policy development and regulation) and the Central Board of Health (service delivery, decentralization, and instituting cost-sharing and pre-payment schemes). Reforms to decrease the share of resources devoted to hospitals and increase resources for primary care services has contributed to a small decrease in inequality. Lower-income quintiles make greater use of primary care and higher-income quintiles make greater use of hospitals. Government spending on health increases inequality in absolute terms but decreases inequality in relative terms; despite government spending's being skewed towards richer quintiles, it is less skewed than is personal spending. Roughly 2.4 times as many total health resources reach the top quintile as the bottom; this would be 2 to 1 if government subsidies were equally distributed. Other means to better target subsidies include: charging more to the rich and urban for government delivered services; improving access to hospital services by the poor and rural; and decreasing use of hospital services by the rich and urban populations.

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Acknowledgments

This research was supported in part by the Partnerships for Health Reform Project, funded by the U.S. Agency for International Development, and by the McGilis Program of Abt Associates Inc. The Rockefeller Foundation Global Health Equity Initiative graciously invited the author to participate in an authors' meeting in Bangladesh in December 1998. The paper benefits from comments made by Sara Bennett, Margie Rauch, and Charlotte Leighton, all of Abt Associates. All errors and weaknesses remain the responsibility of the author.

Foreword

Part of the mission of the Partnerships in Health Reform Project (PHR) is to advance "knowledge and methodologies to develop, implement, and monitor health reforms and their impact." This goal is addressed not only through PHR's technical assistance work but also through its Applied Research program, designed to complement and support technical assistance activities. The program comprises Major Applied Research studies and Small Applied Research grants.

The Major Applied Research topics that PHR is pursuing are those in which there is substantial interest on the part of policymakers, but only limited hard empirical evidence to guide policymakers and policy implementors. Currently researchers are investigating six main areas:

- Analysis of the process of health financing reform
- The impact of alternative provider payment systems
- Expanded coverage of priority services through the private sector
- Equity of health sector revenue generation and allocation patterns
- Impact of health sector reform on public sector health worker motivation
- Decentralization: local level priority setting and allocation

Each Major Applied Research Area yields working papers and technical papers. Working papers reflect the first phase of the research process. The papers are varied; they include literature reviews, conceptual papers, single country-case studies, and document reviews. None of the papers is a polished final product; rather, they are intended to further the research process—shedding further light on what seemed to be a promising avenue for research or exploring the literature around a particular issue. While they are written primarily to help guide the research team, they are also likely to be of interest to other researchers, or policymakers interested in particular issues or countries.

Ultimately, the working papers will contribute to more final and thorough pieces of research work, such as multi-country studies and reports presenting methodological developments or policy relevant conclusions. These more polished pieces will be published as technical papers.

All reports will be disseminated by the PHR Resource Center and via the PHR website.

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1. Introduction

Analysis of household survey data, combined with information on government health spending patterns, allows the degree of inequality in Zambia's health financing system to be analyzed from a variety of angles. This analysis includes the effects of government funding and resource allocation reforms on inequality in the system.

A desire to minimize inequality in health status among population groups is behind much government intervention in the health sector around the world. The large role played by government in funding health services for all in many countries often is motivated by interest in ensuring that poorer groups have access to services that approaches that of richer groups. Policies to spend relatively more on primary and ambulatory services compared to hospital services mainly are linked to questions of efficiency (more disability-adjusted life years gained per unit of spending). However, resource allocation policies also are expected to provide some equity benefits, by putting more resources at the disposal of the relatively under served (usually the poorer and rural). Rarely, though, are the equity implications of these policies examined quantitatively.

Here, household data from the 1996 Living Conditions Monitoring Survey (LCMS) in Zambia are used to examine utilization of government-funded services by population groups as well as out-of-pocket spending on health services. Monetary values are estimated for the hospital and ambulatory services used by the population groups by attributing to them their shares of government budget allocations. The extent of inequality in the value of health services consumed among income groups and between rural and urban residents are compared.

One form of the analysis shows that inequality in consumption of health services is made greater by government allocations (and utilization patterns). This result when inequality is examined in terms of absolute differences in amounts spent on health services used by different income groups and between urban and rural residents. When looked at in terms of shares of resources, government spending on health decreases inequality. This is the result, despite government spending's being skewed towards the richer and urban, because this spending is less skewed than personal spending.

Another analysis examines how reforms in government allocations between hospitals and ambulatory services affect inequality. Zambia made bold reforms to decrease the share of resources devoted to hospitals to be able to increase resources devoted to primary care services. The analysis shows that this has contributed, though in a small way, to a decrease in inequality of resource consumption.

2. Zambia's Health Sector

2.1 Health Sector Reforms

Zambia is pursuing a bold course of health sector reform. Its reform program includes, among others:

- Division of central government responsibilities between (a) the Ministry of Health for overall policy development, and (b) regulation and the Central Board of Health for delivery of services
- Decentralization of control of health services delivery to the district level
- Efforts to "de-link" government health personnel from public service status to give health administrations and facility management more control in terms of hiring/firing and rewarding/disciplining personnel
- Institution of user cost-sharing and voluntary pre-payment schemes

The aims of these reforms are to bring "cost-effective services as close as possible to the family." Another part of the reform package in Zambia has been to reallocate government spending to favor primary care over hospitalizations. The reforms are expected to improve both the efficiency and equity of the health care system and thereby improve health outcomes.

2.2 Zambia's Health Situation

In 1995 Zambia's per capita income was US$ 400[1] (World Bank, 1997), life expectancy at birth 46 years, infant mortality 109 per 1,000, maternal mortality 229[2] per 100,000, and the total fertility rate 5.7. These figures place Zambia in the middle of the world's low-income countries. The Gini index of income inequality stood at 46.2.

2.3 Why Reallocation of Government Health Spending is Recommended

Many have recognized that spending by governments on health has favored hospital care over primary care services. Baker and van der Gaag (1993) state that 70 percent of government spending in developing countries goes to urban hospital-based care. The 1993 *World Development Report, Investing in Health (WDR)*, said that many governments spend "too much

[1]In purchasing power parity terms, Zambia's 1995 per capita income was US$ 930.

[2]1994 figure from World Bank, 1996.

on sophisticated hospital services . . . and too little on essential public health and clinical services." The *WDR* says that often less than 25 percent of government spending goes to primary care, while 70 percent goes to hospitals. The argument is that changing this allocation pattern would improve the efficiency or cost-effectiveness of spending on health by spending less on high-cost care that benefits relatively few in favor of more basic primary care with broader benefits. Further, the *WDR* suggests that poverty alleviation is one reason for government intervention by the purchase or provision of health services. It goes on to suggest targeting of limited government subsidies for health to ensure that the poorest receive "meaningful health care."

In sum, the *WDR* suggests that a policy of reallocation of government resources from hospitals to primary care could improve: (1) efficiency, by using resources on services that have greater health impact per unit of spending, and (2) equity, by putting more resources into services more accessible to poorer and (often) rural populations.

2.4 Zambia's Reallocations

Since 1994 Zambian health authorities have followed policy advice to reallocate health sector spending from hospitals toward primary care. They did so in difficult circumstances. Over the period 1994-1997, the real value of overall government spending in all sectors fell by 1.5 percent. Moreover, the share of government spending going to health fell from 12.0 to 11.5 percent, in the same period. Thus, the reallocations were made within a shrinking real pie.

Despite the difficult situation, the data shown in Table 1 show that the Zambian health authorities achieved a dramatic shift in the allocation of resources between the hospital sub-sector and the districts[3] from 1994 to 1997. The hospital share dropped by about 20 percent of its real value and the district share increased similarly. Such a radical shift in allocations over so short a period of time is unprecedented.

The expected results of this shift are: (1) better health outcomes and (2) improved access for low-income and rural populations.

Table 1. Estimated Relative Shares of Direct Spending on Service Delivery by the Government of Zambia, 1994-1997

	1994	1995	1996	1997 (budgeted)
Hospitals	51.9	49.3	43.0	39.9
Districts	48.1	50.7	57.0	60.1

Source: Ministry of Health, 1997.

[3]Allocations going to districts are spent mainly on primary care services; spending on district first-level referral hospitals is covered under the hospitals category.

2.5 Household Data

The 1996 Living Conditions Monitoring Survey provides additional data that allow the equity impact of government policies in the health sector to be evaluated. This permits an evaluation of the equity impact of government health spending in general and the shift in health allocations away from hospitals toward primary care, as well.

The first round[4] of the LCMS was conducted in September and October 1996 as a component of the Social Recovery Project II, supported by the World Bank, with funding from the Norwegian government. The survey's overall purpose is to provide indicators of socio-economic status and poverty on an annual basis. A nationally representative sample of 11,774 households were interviewed, covering 61,547 people.

The health sections of the questionnaire asked about illnesses occurring in the two weeks prior to the survey. This captured 15,387 episodes of illness. Those who reported an illness were asked where they went for care and how much they spent on care from all sources. A broad examination of the health results from the LCMS is found in Diop, Seshamani, and Mulenga (1997). The results from that work are analyzed further here.

The data on utilization of services show a familiar pattern. Lower-income quintiles and rural residents make relatively greater use of primary care (health centres) and the higher-income quintiles and urban residents make relatively greater use of hospitals (see Table 2). Primary care (health centres) use is nearly equal for quintiles 1–4. Only the richest use them much less. On the other hand, higher-income groups make greater use of hospitals[5], with the richest quintile using hospitals about three times as much as the poorest two quintiles. Likewise, urban residents benefit much more than rural residents from hospitals, with urban residents' per capita hospital utilization more than three times that of rural residents. Because of physical location it is to be expected that urban residents would use hospital services more than rural. However, the skewness found would seem to indicate more than a justifiable location bias.

[4]Additional rounds are to be conducted in subsequent years.

[5]Note that the LCMS does not distinguish between use of hospitals on an inpatient and on an outpatient basis. Hence, this analysis must combine them. To the extent that groups use the inpatient and outpatient services available from hospitals in different ratios, a bias is introduced in the estimated values of resources used. Since the more detailed data are not available to allow this kind of breakdown, this must be acknowledged as a limitation of the results.

Table 2: Hospital and Health Centre Use by Income Quintile and Rural and Urban Populations

Population Group	Index of Hospital Utilization	Index of Health Centre Utilization
Quintile 1	53	107
Quintile 2	56	101
Quintile 3	99	105
Quintile 4	128	104
Quintile 5	164	83
Rural	58	105
Urban	201	87

Index: 100 = average per capita utilization when ill.

2.6 Government Expenditure on Health Services

The government of Zambia spent the equivalent of US$ 6.28 per capita on the health sector in 1996. The value of government-funded services consumed by different population groups may be approximated by allocating this sum across their use of the hospitals and primary care services (see Table 3).[6] Overall government health sector expenditure (including indirect costs) is divided between hospitals and primary care according to their shares of overall spending shown in Table 1. The estimated value of primary care services used by quintiles 1–4 and the rural population ranges from US$ 3.61–3.82. The estimated value of the richest quintile's use of these services is lower at US$ 2.98, as is the estimated value of primary services used by the urban, at US$ $3.12. However, the much greater use of hospital services by the richer (estimated value for quintile 5 of US$ 4.43) than the poorer (estimated value for quintile 1 of US$ 1.43) and the urban (US$ 5.42) than the rural (US$ 1.56), means that, overall, they capture larger shares of the value of government spending on health.

[6]The US$ 6.28 of government health spending per capita was allocated 43 percent (US$ 2.70) to hospitals and 57 percent (US$ 3.58) to primary care for 1996 (as shown in Table 1). The resulting per capita amounts then were assigned to population groups according to their relative utilization of government-funded hospitals and health centres (as in Tables 2 and 3) to compute the estimates of the values of services used. For example, income quintile 1 used government-funded hospital services 53 percent of average, so the value of hospital services used by this group is computed as 0.53 x US$ 2.70 = US$ 1.43.

Table 3. Estimated Value (In US$) of Government Health Services Used by Various Population Groups, 1996

Population Group	Value of Hospital Services Used	Value of Primary Care Services Used	Total Value of Services Used
Quintile 1 (Poorest)	$1.43	$3.82	$5.25
Quintile 2	$1.50	$3.61	$5.11
Quintile 3	$2.68	$3.77	$6.45
Quintile 4	$3.47	$3.71	$7.18
Quintile 5 (Richest)	$4.43	$2.98	$7.41
Rural	$1.56	$3.76	$5.33
Urban	$5.42	$3.12	$8.54
All	$2.70	$3.58	$6.28

2.7 Personal Expenditure on Health Services

The LCMS data also permit examination of personal expenditures on health services by different population groups. Table 4 shows that: (1) the urban population spends more than three times what the rural population spends on health (US$ 13.23 versus US$ 3.82) and (2) both rural and urban Zambians spend more on drugs than on any other health services item. Overall per capita personal spending on health services in 1996 is US$ 6.88, a bit more than government spending per capita (US$ 6.28). Not surprisingly, higher income groups spend considerably more than lower income groups (see Table 5).

Table 4. Shares (%) of Personal Health Expenditures by Rural and Urban Populations, 1996

Item	Rural	Urban
Drugs	45	52
Pre-Payment	9	10
Fees for Ambulatory Services	11	15
Fees for Hospital Services	15	14
Fees for Traditional Services	20	9
Total Per Capita Spending (US$)	$3.82	$13.23

Table 5. Per Capita Annual Personal Spending on Both Health (In US$) by Income Groups, 1996

Quintile	Per Capita Expenditure (US$)
1	$3.38
2	$3.17
3	$5.68
4	$8.92
5	$13.31
All	$6.88

2.8 Overall Expenditure on Health Services

Table 6 combines government and personal spending on health services for the various population groups. It shows that the value of resources devoted to health services for richer and urban populations is much greater than for the poorer and rural populations. Most of this difference is because of personal spending. However, government spending also favors the richer and urban, making the gaps between groups wider than would be the case if the incidence of government spending were equally divided among groups.[7]

Table 6. Estimated Value of Total Health Spending per Capita on Various Population Groups, 1996

Population Group	Value of Personal Spending	Value of Government Spending	Total Value of Spending	Government Contribution to Gap*
Quintile 1	$3.38	$5.25	$8.63	-$1.03
Quintile 2	$3.17	$5.11	$8.29	-$1.17
Quintile 3	$5.68	$6.45	$12.13	+$0.17
Quintile 4	$8.92	$7.18	$16.09	+$0.90
Quintile 5	$13.31	$7.41	$20.72	+$1.13
Rural	$3.82	$5.33	$9.15	-$0.95
Urban	$13.23	$8.54	$21.77	+$2.26
All	$6.88	$6.28	$13.16	$0.00

*Government Contribution to Gap is the difference between actual value of government-funded health services consumed and the average.

[7]If it were feasible for the government of Zambia to provide vouchers of equal value to each person, which then would be used to purchase the appropriate combination of inpatient and outpatient health care or insurance, an equality of the value of government subsidies per person would be achieved. However, this kind of system, something like what the United States federal government provides to its employees, would represent a radical, and possibly infeasible, change from Zambia's current set-up.

3. Analysis of Equity Effects

The question of equity of spending patterns on health in Zambia may be examined in a number of different ways. If spending on health came only from personal sources, the distribution of spending by income group likely would be highly unequal, similar to, but probably not quite so skewed as, the distribution of personal spending (shown in Table 5).

Absolute Gaps. The pattern of government spending and utilization of services means that the richer and urban residents capture more of government's resources (because of their greater use of more expensive hospital care), so that the absolute gap between them and the poorer and rural populations is larger. As shown in the last column of Table 6, the gap between what is spent on health for the lowest-income quintile and the highest is greater by US$ 2.16 (US$ 7.41–S$ 5.25) because of the government spending pattern and the pattern of use of services. The gap between the rural and the urban is US$ 3.21 larger (US$ 8.54- US$ 5.33) because of government spending and the service use pattern.

As is to be expected, higher-income groups in Zambia spend more of their own money on their health than do the poorer. In 1996 about US$ 12.09 (US$ 20.72–US$ 8.63) more per capita was spent from all sources (government and personal) on the health of the richest 20 percent than on the poorest. This gap is 17.9 percent wider because of the unequal distribution of government resources. As a result, roughly 2.4 times as many total resources (government and personal spending combined) are devoted to the health of the upper 20 percent of the income distribution as to the lowest 20 percent (US$ 20.72, compared to US$ 8.63 per capita). This ratio would fall to 2.0 to 1, if the incidence of government subsidies were equally distributed between the lowest and highest income groups (e.g., each group were to be able to use government-funded services of a value of US$ 6.28 per capita).

Relative Shares. However, looked at in terms of shares of total resources going to the various groups (see Table 7), the government spending makes the situation relatively more equitable. In terms of personal spending alone, the richest quintile devotes almost four times as many resources to health as does the poorest (38.6 percent versus 9.8 percent of total personal spending). The 32 percent urban population accounts for 62.4 percent of personal spending on health.

Adding in government's spending and the use pattern, these ratios become less skewed. The richest quintile commands only 2.4 times the resources of the lowest quintile (31.5 percent versus 13.1 percent of combined government and personal health spending). The 32 percent urban population accounts for only 52.0 percent of total expenditures on health.

Impact of Reallocation Towards Primary Care. The last column of Table 7 shows the counter-factual case where the allocation of government spending between hospitals and districts (for primary care) would have remained as it was in 1994 (see Table 1); that is, relatively more government funds allocated to hospitals and fewer to primary care. This column also assumes the use pattern of 1996. It shows that without the reallocation, the distribution of resources would

have favored the richer and urban populations somewhat more. Thus, the reallocation contributed in a small way to a lessening of inequality of resource allocation, in addition to its presumed value in improving efficiency by channeling a greater share of resources to more cost-effective primary care.

Table 7. Shares of Health Spending Accruing to Various Groups, 1996

Population Group	Share of Personal Spending	Share of Government Spending	Share of Total Spending	Shares Without Reallocation*
Quintile 1	9.8	16.7	13.1	12.6
Quintile 2	9.2	16.3	12.6	12.2
Quintile 3	16.5	20.5	18.4	18.4
Quintile 4	25.9	22.9	24.4	24.6
Quintile 5	38.6	23.6	31.5	32.1
Rural (68%)	37.6	60.4	48.0	45.9
Urban (32%)	. . . . 62.4	39.6	52.0	54.1
All	100.0	100.0	100.0	100.0

*****The column Shares Without Reallocation shows the shares of health spending that would have accrued had the allocations to hospitals and districts of 1994 been maintained.

4. Policy Implications

To better achieve the stated objective of equitably available cost-effective services, Zambian health authorities have some additional work to do. The current pattern of use of government-funded health services means that the richer and urban capture a greater share of the value of the subsidy than do the poorer and rural populations.[8] Thus, effort is needed to better target those subsidies. Several options are available, which may be used singly or in combination:

- Continue to shift resources from hospitals (used more by the richer and urban) toward primary care services (used more by the poorer and rural).
- Charge more to the richer and urban (e.g., by means testing user cost-sharing) for the use of government-delivered health services.
- Improve access to hospital services by the poorer and rural (by building more hospitals in poor neighborhoods and in rural areas or by increasing referrals to hospitals for these populations).
- Decrease the use of hospital services by the richer and urban populations (by tightening referrals and self-referrals from ambulatory services to hospitals).

An intermediate objective of such policies might be to achieve equality among population groups in the benefit they derive from government funding of health services as measured by shares of government contributions consumed equal to population shares (as in Table 7). Once this is achieved, a further improvement would be to help relatively disadvantaged groups more, by making the government's allocations a net contribution toward greater equality in total value of spending across population groups (the minuses would change to pluses, and *vice versa* in the last column of Table 6, except for quintile 3, where the figure should approach zero).

[8]Additional research might examine the use of government-funded hospital and primary care by income groups within the rural and urban populations.

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